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STATUS OF FLORISTIC STUDIES OF MEGHALAYA

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Meghalaya, consisting of three districts *viz.*, Khasi, Jaintia and Garo Hills, has become a separate State from erstwhile Assam, since January 21st, 1972. It is located within 25° 1'-26° 05' N Lat. and 89° 47'-92° 52' E Long. The State with an area of 22,489 sq. km is almost mountaneous and forms the major part of the Central Assam Range. It is bounded by Goalpara, Kamrup and Nowgong on the North, plains of Bangladesh on the south and west, and North Cachar on the east. The central part, "Shillong plateau", is the highest and is comparatively low both towards the Garo Hills in the west and Mikir Hills on the east. The southern face is remarkably abrupt leading to the plains of Bangladesh, while the northern edge is gradually sloping towards the Brahmaputra valley by a succession of sharp undulating hills and ridges.

The rainfall is very high and well-spread, and the climate is somewhat temperate in the Khasi & Jaintia Hills, while in the Garo Hills the rainfall is much low with a comparatively warm climate.

The State has attracted the attention of quite a number of Botanists, Horticulturists etc. since long back. Burkill (1965) has furnished a full data of all the plant collectors in this area. Notable among them are Griffith & Wallich (1837) and Hooker & Thomson (1851) who have made vigorous collections from different parts of Assam including this state. Most of their collections are deposited in Kew and Calcutta with duplicates in several Herbaria of Europe and America. Mention may also be made of Sir George King who during his tenure as the Superintendent of the then Royal Botanic Garden, Calcutta, sent his collector G. A. Gallatly to these areas; and the collections are mainly deposited in Calcutta and Kew with duplicates in Berlin and Manchester. The first organised effort for a detailed knowledge of the flora of Assam was undertaken by Gustav Mann who collected extensively throughout Assam and most of his collections are in the 'Kanjilal Herbarium' of Botanical Survey of India, Shillong with duplicates in Calcutta and Kew. This is followed by U. N. Kanjilal, and later, by his son P. C. Kanjilal and other forest officials who have made substantial contributions to the Forest Herbarium. These collections have formed the basis for Kanjilal and his associates 'Flora of Assam'. In 1936, N. L. Bor during his service as Botanical Forest Officer in Assam made extensive collections in Khasi & Jaintia Hills with special emphasis on Grasses which led him to write up the Graminae portion of Assam (Vol. 5).

The Eastern Circle of Botanical Survey of India since its inception in 1856 has attempted to study the plant wealth of this floristically rich area. Since then a number of officers *viz.*, R. S. Rao, G. Panigrahi, D. B. Deb and others made quite a good number of collections from this state. Studies on some small areas, such as "Flora of Jowai and its vicinity" by N. P. Balakrishnan, "Flora of Nongpoh" by J. Joseph, "On Mawphlang" by P. K. Hajra have been done. In addition to these, "Orchids of K. & J. Hills" by S. K. Kataki have been done.

All the same, the flora of this state is imperfectly known. The only main work— "The Flora of Assam" has remained incomplete without any treatment of the monocots except Vol. 5 on Graminae by Bor. Moreover, this work has given more emphasis on woody species and includes very little of the herbaceous elements. Further, it relates to Assam in a wider sense and only scattered references to areas now in Meghalaya have been made. In the context of preparing a detailed floristic account of the State of Meghalaya, systematic study of the individual district (as a unit) seems necessary. With this aim in view, the senior author has taken up the Khasi Hills since 1975 and has collected from different ecologically interesting and diverse habitats. In addition to this, quite a large numbers of interesting and economical ornamental plants including orchids have been collected for introduction in 'Woodlands' and Barapani Exptl. Garden, Shillong. The second author has taken up the Garo Hills and has made collections since 1974 including a number of live collection for introduction, in the Experimental Garden at Shillong. The collections from both the districts alongwith the earlier collections already deposited in the 'Kanjilal Herbarium' and with additional materials loaned from Calcutta Herbarium are being studied. On such studies it is proposed to write up later the flora of Meghalaya which in turn will help in future compilation for the flora of India.

During these collection trips, detailed observation on the vegetation and flora were made by the authors and appropriate notes prepared in the field. In the following pages a brief account of the vegetation alongwith the botanical importance have been presented.

The State is very rich in its floristic composition and offers excellent scope for botanists. The vegetation can be broadly divided into the following distinct types :

1. *Tropical mixed evergreen forest* : This is confined to the northern and southern parts of Khasi & Jaintia Hills upto an elevation of 900 m and also in several places in Garo Hills. The vegetation includes trees like *Shorea assamica, Vatica lanceaefolia, Tetrameles nudiflora, Mesua ferrea, Toona ciliata, Terminalia bellerica, Aesculus assamicus, Engelhardtia spicata, Exbucklandia populnea, Garuga pinnata, Duabanga grandiflora,* etc. intertwined with several woody climbers. The trees are clothed with different epiphytes including orchids. *Musa, Pandanus,* bamboo etc. form a conspicuous elements in several places.

2. *Tropical deciduous forest* : This is predominant type of forests commonly met within Garo Hills. This constitutes *Shorea robusta* as the single dominant species in several places. Other dominant trees are *Cmelina arborea, Artocarpus chaplasa, Schima wallichii, Sterculia villosa,* etc. Climbers like *Mucuna prurita, Lygodium flexuosus,* etc. are very common.

3. *Subtropical pine forest* : This is spread all over Khasi & Jaintia Hills from an elevation of *ca* 900 m and is absent in Garo Hills and also in some areas of K & J Hills specially towards the north and north-west. It is dominated by single species—*Pinus kasiya* intermingled with *Schima wallichii, Myrica esculenta, Rhododendron arboreum, Elaeocarpus lancifolius, Quercus griffithii* etc. The

trees are heavily clothed with numerous epiphytes including orchids and the forest floor is thickly matted with pine needles which support the growth of different herbaceous species.

4. *Grassland* : The grassland formation is a biotic climax originated from the age-old practice of shifting cultivation commonly known as 'jhumming'. This extends usually covers the bare rounded tops of low hills and vales, interspersed here and there by small pockets of mixed forests. The grassland includes several fire resistant grasses alongwith a variety of herbaceous species such as *Gentiana quadrifaria, Osbeckia crinita, Hypochaeris radicata, Potentilla polyphylla* etc.

Geographically isolated associated with high rainfall and somewhat temperate climate, the flora of this region is very important because of the presence of a number of endemic species. A few of these are *Elaeocarpus prunifolius, Adinandra griffithii, Camellia caduca, Impatiens radicans, I. porrecta, I. paludosa, Xanthoxylum khasianum, Aglaia periviridis, Anacolosa illicoides, Ilex embeliodes, Salvia saxicola,* etc. A few others which deserve special mention are *Nepenthes khasiana, Monotropa uniflora* and an unique root-parasite—*Mitrastemon yamamotoi.* Among many others, mention must be made of orchids about more than 300 species have so far been reported from this State. Some of the most beautiful orchids are *Dendrobium densiflorum, D. chrysanthum* (golden orchid), *D. nobile, D. moschatum, D. formosum, Cymbidium giganteum, C. aloifolium, Vanda coerulea, Rhynchostylis retusa, Paphiopedilum venustum,* etc. Because of their high ornamental value they are the victims of large scale commercial exploitation and are becoming rare and scarce in several places.

REFERENCES

Bor, N. L. The relict vegetation of the Shillong plateau-Assam. *Indian Forest Rec.* (new series) 3 (6) : 152-195. 1942 a.

—— Some remarks on geology and the flora of the Naga and Khasi Hills. *150th Anniversary volume R. bot. Gdn., Cal.* 129-135. 1942 b.

Griffith, W. Itinerary notes of plants collected in Khasyah and Bootan mountains, in Afganistan and neighbouring countries. Calcutta. 1848.

Hooker, J. D. Himalayan journals, Vols. 1-2. London. 1854.

Kanjilal, U. N. et al. Flora of Assam, Vols. 1-4. 1934.

Rao, A. S. The vegetation of the Khasi and Jaintia Hills. *Proc. Pre-Congress Symposium, 21st Intern. Geogr. Congr., India, Gauhati.* 1969.

Rao, R. S. and G. Panigrahi. Distribution of vegetational types and their dominant species in Eastern India. *J. Indian bot. Soc.* 40 : 274-285. 1961.